

Mechanics and Special Relativity, Spring 2006

Homework Assignment # 7

(Due Wednesday, March 29, before the lecture.)

Lectures and Reading Assignments:

Readings are from “*An Introduction to Mechanics*” by Kleppner and Kolenkow.

- Lec 24, 3/17 (Fri): Nonconservative Forces. Power. Conservation Laws and Collisions. **Sec. 4.11–4.14 (pp. 182–194).**
- **SPRING BREAK, NO LECTURES: 3/20-3/24**
- Lec 25, 3/27 (Mon): Angular Momentum. **Sec. 6.1, 6.2 (pp. 232–238).**
- Lec 26, 3/29 (Wed): Torque. **Sec. 6.3 (pp. 238–247).**

Problems:

Numbered problems are from “*An Introduction to Mechanics*” by Kleppner and Kolenkow, Chapter 4 (pp. 194–200).

1. Can the total mechanical energy of two colliding objects after the collision be **greater** than their total mechanical energy before the collision? If no, explain why. If yes, cite an example of a physical system where this can occur.
2. Problem 4.13 (Hint: study Example 4.15 in the book before you start!)
3. Problem 4.15
4. Problem 4.25
5. Problem 4.27
6. Problem 4.29